

ABSTRACT

A problem of the invention is to prevent a substrate from being damaged with a metal stylus upon mechanical patterning.

In the invention, a thin film obtained by accumulating in this order a substrate 2, a back surface electrode layer 3, a multi-element compound semiconductor thin film (light absorbing layer) 5, a transparent buffer layer 6 having a high resistance and a transparent and electroconductive window layer 7 is divided into respective unit cells, which are connected plurally in series to obtain a prescribed voltage, and it contains patterning P1 of dividing the back surface electrode layer 3, patterning P2 of dividing the light absorbing layer 5, or the light absorbing layer and the buffer layer 6, and patterning P3 of dividing from the window layer 7 up to the light absorbing layer 5, in which in P2 and P3, an ultrathin film layer 4 formed secondarily through reaction with a chalcogen element on the surface of the back surface electrode layer 3 in the formation step of the light absorbing layer is used as a solid lubricant upon mechanically removing the constitutional thin film layers with a metal stylus to form grooves.